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Papers on biological and medical science libraries which were presented at the 1985 International Federation of Library Associations (IFLA) conference include: (1) "The International Programs of the National Library of Medicine" (Lois Ann Colaianni, United States); (2) "Information Needs for International Health. A CDC (Centers for Disease Control) Perspective" (Stanley O. Foster, United States); and (3) "The London School of Hygiene and Tropical Medicine and Its Library Services" (Brian Furner, United Kingdom). (THC)

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IFLA GENERAL CONFERENCE, CHICAGO

Division: Special Libraries

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The international programs of the National Library of Medicine

by Lois Ann COLAIANNI, Associate director

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

The International Programs of the National Library of Medicine

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The National Library of Medicine (NLM), one of the three national libraries in the United States is the world's largest research library in a single scientific and professional field. The Library's primary mission, as mandated by the Congress, is to assist in the advancement of medical science and to aid in the dissemination and exchange of information important to the progress of medicine and to the public health. Its service is primarily directed toward health professionals. To support this mission the Library collects the scholarly literature comprehensively in all major areas of the health sciences and to a lesser degree in such areas as general chemistry, physics, zoology and botany. The collections include more than 3.25 million books, journals, technical reports, manuscripts, microforms and pictorial materials in more than 70 languages with imprints from virtually every country in the world. Approximately 23,000 serial titles are received annually. Also housed in the Library is a medical history collection of pre-1871 and rare medical texts, manuscripts, and incunabula. The Library's Collection Development Manual, formerly entitled Scope and Coverage Manual, has just been revised and is available from the U.S. National Technical Information Service.

The Library's extensive collections may be used onsite or items in some of the collections may also be requested on interlibrary loan. In order to provide rapid bibliographic access to NLM's vast store of information, the Library pioneered in the use of computer and telecommunication technology through MEDLARS (Medical Literature Analysis and Retrieval System).

The Library also developed and continues to enhance its computerized databases containing information on toxicology. Through the Lister Hill National Center for Biomedical Communications, one of NLM's five operational divisions, the Library is exploring the uses of computer, communication, and audiovisual technologies to improve the organization, dissemination and utilization of biomedical information.

In addition to serving as a national resource for U.S. health science libraries, many of the NLM products, services, and programs are useful to libraries throughout the world. This report will cover the products and services of most interest internationally in the MEDLARS databases and their printed counterparts, access to specific materials in the collection, and training.

There are more than twenty MEDLARS databases which can be grouped in five general categories.

Technical Processing Databases

CATLINE, Catalog Online, contains over 590,000 authoritative cataloging records for printed monographs and serial titles in the NLM collections. This database is available in the U.S. MARC format in two segments: the records for printed materials before 1965 and the cataloging records for materials published in 1965 and later.
SERLINE, Serials Online, contains bibliographic records for about 60,000 serial titles.

AVLINE, Audiovisuals Online, contains over 13,000 cataloging records for audiovisuals.

NAF, the Name Authority File, is an authority list of over 175,000 personal and corporate names.

MESH, the Medical Subject Headings file contains about 14,000 medical subject headings used in indexing journal articles and the subject analysis of books and over 38,000 chemical substances.

With the exception of the Name Authority File the information in these databases is available in printed or microform publications from the U.S. Government Printing Office or the U.S. National Technical Information Service.

Toxicology databases.

TOXLINE, Toxicology Information Online, and its backfiles are bibliographic databases covering the pharmacological, biochemical, physiological, environmental, and toxicological effects of drugs and other chemicals.

CHEMLINE, is an online chemical dictionary containing chemical names, synonyms, CAS Registry numbers, molecular formulas, NLM file locators, and limited ring formation.

RTECS, the Registry of Toxic Effects of Chemical Substances, is an online version of the U.S. National Institute of Occupational Safety and Health's publication of the same name. It contains acute and chronic toxicity data for potentially toxic chemicals.

TDB, the Toxicology Data Bank, contains peer reviewed toxicological, pharmacological, environmental, occupational, manufacturing, and use information as well as chemical and physical properties for chemicals that are highly regulated or have a high toxicity potential.

Cancer databases - originated by the National Cancer Institute.

CANCERLIT, Cancer Literature, contains references to current books, journal articles, reports and meetings abstracts. The monthly file which is used to update CANCERLIT is CANCEREXPRESS.

CANCERPROJ contains a collection of summaries of ongoing cancer research.

PDQ, Protocol Data Query, was designed as a user friendly system for health professionals to obtain up-to-date information on diagnosis and treatment, active clinical protocols, and a directory of physicians and organizations with a special interest in the care and treatment of cancer patients.

Special subject databases.

BIOETHICSLINE contains citations from print and non-print materials on bioethical topics.

DIRLINE is an online, interactive version of the Library of Congress's National Referral Center. It contains directory type information on resource centers and organizations, mostly in the United States.

HEALTH PLANNING AND ADMINISTRATION has citations on health planning, organization, financing, management, manpower, and related subjects. The printed version of this database is the Hospital Literature Index published by the American Hospital Association.

HISTLINE has citations to monographs, journal articles, symposia and congresses in the history of medicine.

POPLINE provides citations to the worldwide literature on population and family planning.

MEDLINE, MEDLARS online, and its backfiles contain about five million citations to the biomedical literature from 1966 to the present. Some 24,000 citations are added each month from over 2,600 journal titles from all around the world. Most of the citations in MEDLINE are available in printed form in Index Medicus, a monthly publication which is cumulated annually. MEDLINE does contain some dental and nursing citations not printed in Index Medicus. These are also available in the Index to Dental Literature published by the American Dental Association or the International Nursing Index, published by the American Journal of Nursing Company.

Users outside the United States may access the MEDLARS databases through an International MEDLARS partner either online almost 24 hours a day at NLM or at a host which leases the NLM databases. NLM has licensing arrangements with the National Library of Australia, the Canada Institute for Scientific and Technical Information, Federacion Panamericana de Asociationes de Facultades (Escuelas) de Medicina in Colombia, Institut National de la Sante et de la Recherche Medicale in France, Istituto Superiore di Sanita in Italy, The Japan Information Center of Science and Technology, the Ministry of Public Health in Kuwait, Centro Nacional de Informacion y Documentacion en Salud in Mexico, Institute for Medical Literature of the South African Medical Research Council, Medical Information Center

of the Karolinska Institutet in Sweden, Dokumentationsdienst der Schweizerischen Akademie der Medizinischen Wissenschaften de l'Academie Suisse des Sciences Medicales in Switzerland, The British Library, Deutsches Institut fur Medizinische Dokumentation und Information in Germany, and the Biblioteca Regional de Medicina with the Pan American Health Organization in Brazil. The Library is negotiating partnerships in India, China and Egypt.

MEDLARS databases are also leased by companies or organizations such as the Bibliographic Retrieval Services (BRS), Dialog Information Services, Inc. and the Beth Israel Hospital in Boston which provides online access using Paperchase. Some of these organizations also provide access to international users. Many of the international partners and other vendors offer training; tools, such as a translated MeSH; and retrieval software of special assistance to international users.

Organizations or institutions outside the United States may lease one or more of the MEDLARS databases. Leasing information and charges may be obtained by writing the National Library of Medicine.

In the United States sophisticated and relatively low cost micro and minicomputers are available to health professionals in their offices or in libraries. Health professionals and librarians have asked NLM for portions of databases to run on these personal or institutional computers. In response to these requests NLM announced that subsets or portions of the MEDLINE database would be made available to U.S. users. Users have requested subsets on specific subject areas such as dermatology or subsets containing citations from journal titles corresponding to those held in a specific library. NLM makes only MEDLINE records available, not search software. Retrieval software must currently be obtained from other sources. Before requesting subsets users are urged to calculate and compare the benefits and costs of online access to the MEDLARS databases on a host computer with those of mounting a portion of the database on a local personal or institutional computer. Maintaining and updating the file is not a trivial matter.

After one year's experience with the new subset policy, an analysis will be made. At that time, NLM will consider a policy that would permit international MEDLARS partners and vendors to provide subsets to U.S. and international users.

A number of organizations are investigating the use of optical disk technology for providing local access to MEDLINE. If this becomes a reality, local mounting and access to MEDLINE will become much more attractive since the maintenance and updating of the file could be done centrally and a new disk sent to the user each month. There is promise that this technology will be available for such a use in the next few years.

Until recently most MEDLARS searchers were trained professional librarians. In the past year an increasing number of health professionals have expressed an interest in being trained and doing some of their own searches. Last fall NLM developed a six hour training course and an accompanying manual for librarians to teach health professionals to do simple searches on their own. NLM staff has trained more than 200 librarians to provide this health professional search training. These trainers are training health professionals in medical schools and hospitals throughout the U.S. The training manual is available from the U.S. National Technical Information Service.

Over one half of the Library's new online users added in 1985 were health professionals. There are different opinions about whether or not health professionals will actually do much searching. I personally believe that health professionals will learn to search as students and continue to search throughout their professional lives. In the next few years accessing databases of all kinds will become commonplace for health professionals as well as for other professionals. NLM and other organizations providing databases are working on simplifying and improving the search software to assist health professionals desirious of doing their own searching. These improvements will also help librarians with minimal searching skills. Although many librarians have been concerned that direct searching by health professionals will reduce the amount of searching done by librarians for users, there is no evidence of this. In some cases there appears to be an increase in search requests submitted to librarians. If health professionals do simple searches and refer the more complex ones or those suitable for databases which the health professionals don't regularly access, this increases the need for librarians with sophisticated searching skills in a wider range of databases and subject expertise. It also suggests the very real need for gateways through which a health professional can use a single, simple command language to access many databases. Increasingly librarians are becoming teachers, instructing library users in how information is organized and accessed. It is important that librarians are knowledgeable and can take on this important role.

For many years the NLM has offered a one year Associate Program to U.S. citizens who have a Masters in Library Science. This Program is designed to prepare library school graduates for future leadership roles in health sciences librarianship. During the first six months of the Program the Associates receive short indepth orientations to the major NLM programs and activities with related technical training such as indexing, etc. and actual but brief experience in reference and other areas. The Associates receive training in computerized searching and using automated systems to accomplish technical library functions. During the latter six months of the Program the Associate may work independently on one or two projects. Associates have developed guidecards for MEDLARS databases, analyzed workflow in sections, evaluated products, etc. During the year there are special seminars and field trips.

Each year NLM receives numerous requests from individuals from outside the U.S. to come to the Library for training. The Library is investigating the possibility of providing one position in the Associate Program for a qualified health sciences librarian from outside the U.S. beginning in September 1986. The individual would have to demonstrate leadership skills; be employed in a biomedical or health sciences library or information center; be recommended by the library with which the individual is affiliated or certified by a state, national or international organization as an individual who will be employed as a librarian or information specialist; must have full financial support for the time he or she is in the Program, and must return to a library position in their country. A committee would be named to select the International Associate from among each year's applicants.

The International Associate would participate in the first six months of the Program. After completing that portion of the Program, the Associate could select among three options: 1) remain at NLM for up to six months to work on special projects; 2) be assigned for up to six months to a health sciences library in the U.S. similar to the one to which the individual will be returning; or 3) return home. NLM thinks this program would provide a way in which the Library could share its expertise and help libraries in other countries improve their operations and information services.

There are a few other programs international visitors inquire about when they visit NLM. The first is interlibrary loan service.

The Library will provide photocopies of articles or small portions of text that are requested on interlibrary loan. The current charge is $7.00. The Library does not lend originals of printed materials or audiovisuals outside the U.S. However, requests for microfilm or other photocopy of materials from the historical collections will be filled and should be addressed to the Chief of the History of Medicine Division. The charge for these varies depending on the amount of material filmed. Before sending a request to NLM you may wish to determine if the Library acquired the item by searching CATLINE, SERLINE, MEDLINE or the databases' printed counterparts. A fact sheet describing the interlibrary loan policies and procedures is available from the Library.

Recently the Library announced an online interlibrary loan requesting and routing service, DOCLINE. This service is gradually being opened to U.S. health sciences libraries. By early 1987 all U.S. health sciences libraries should have access to DOCLINE. Some international access may be possible after 1987.

The routing component of DOCLINE contains serial holdings for some 1,300 U.S. libraries. The Library has spent considerable time and effort developing serial union lists since approximately 85% of the health

science interlibrary loan requests are for serials. A small percentage of the serial requests are for items not available in the U.S. Many of these requests are referred to the Lending Division of the British Library. NLM would be interested in receiving holdings lists for serials in the health sciences from national libraries or major biomedical libraries in other countries that are willing to fill interlibrary loan requests referred from NLM.

Many questions are also asked about preservation by visitors. NLM is completing a comprehensive preservation plan which will incorporate the knowledge and skills gained from the the Library's Lister Hill Center research in optical disk storage and retrieval. It is hoped that this plan will complement U.S. national preservation plans and those being developed in other countries, such as IFLA's Core Preservation and Conservation Program.

These are a few of the products, services and programs provided by the National Library of Medicine that are relevant to libraries throughout the world. As telecommunications networks cover the populated portions of the universe and modern technologies make published literature more readily accessible to every corner of the world, it seems important that the major libraries work together to provide an international plan for facilitating access to journal literature and informational databases, identifying major holdings, assigning responsibility for preservation, and transferring authoritative bibliographic data to facilitate cataloging.

NLM looks forward to working with major national libraries to access regional databases that complement those in MEDLARS, to share bibliographic data for acquisitions and cataloging, to plan for the preservation of the scholarly record, and to share expertise in improving access to information.

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Information Needs for International Health
A CDC Perspective

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INTRODUCTION

LASSA FEVER IN SIERRA LEONE

METHYL-ISOCYANATE POISONING IN BHOPAL, INDIA

AIDS IN THE UNITED STATES

MEASLES IN NIGERIA

This presentation is based on the experience of the Centers for Disease Control working with health professionals in other countries. As medical librarians, your prime contact with CDC has probably been through the Morbidity and Mortality Weekly Report. Known as the MMWR, the publication is dedicated to providing current data on public health to health professionals, the press, and the public. With lead times occasionally as short as 48 hours, the MMWR symbolizes CDC's role in the collection, analysis, and dissemination of health information. Examples of subjects covered in the MMWR include:

Oral Contraception Use and the Risk of Breast Cancer in Young Women
Acute Schistosomiasis with Tranverse Myelitis in American Students returning from Kenya
Vietnam Veterans' Risks for Fathering Babies with Birth Defects
Evaluation of Drought Related Acute Undernutrition - Mauritania, 1983
Epidemic Fatal Purpuric Fever Among Children - Brazil

In a world where 20 million children die each year of preventable or treatable conditions and where life expectancies for many are in the 50's, better use of current knowledge holds one of the keys to increased survival and improved quality of life.

This presentation will focus on four needs for information in international health:

Collection

Access

Dissemination

Use

COLLECTION OF INFORMATION: LASSA FEVER IN SIERRA LEONE

In 1968, a missionary nurse in Lassa, Nigeria developed a severe febrile illness and died. The nurse caring for Case Number 1 developed similar symptoms and also died. The nurse caring for Case 2 developed the same symptoms, was brought to Lagos, treated symptomatically, and evacuated to New York. She recovered. A new virus, now known as "Lassa," was isolated at Yale University.[1,2]

During the next three years, CDC worked with authorities in Nigeria, Sierra Leone, and Liberia to investigate hospital outbreaks of Lassa.[3,4,5] The impression at the time was that of a sporadic disease with high mortality, 50-70 percent. Community studies in Sierra Leone documented widespread transmission among humans varying in severity from asymptomatic, to mild, to severe.[6] Disease was also found in a rodent species, Mastomys.[7]

In 1977, CDC established a field laboratory in Kenema, Sierra Leone. Working with two local hospitals, laboratory staff identified Lassa as the cause of 30 percent of adult admissions with fever and many deaths.[8]

Treatment studies were undertaken initially with sera from recovered Lassa cases and more recently with an antiviral drug, ribavirin. Use of ribavirin in the first few days of illness, has reduced mortality in severe cases. Laboratory studies on the dangerous viruses have been carried out in the maximum security laboratory at CDC.

The current priority is to share this new information with African colleagues. Earlier this year, the World Health Organization sponsored a course at Kenema at which African virologists developed hands-on skills, in clinical and laboratory diagnosis, treatment, and ecologic surveillance of Lassa. Data are also being made available through the medical literature.

ACCESS TO INFORMATION: METHYL-ISOCYANATE POISONING IN BHOPAL, INDIA

In December 1984, an industrial accident at a Union Carbide chemical plant exposed an estimated 200,000 residents of Bhopal to a toxic gas known as Methyl-Isocyanate, an estimated 2,000 Indians died. The long term effects on

the survivors are not known. While the press has focused on the human suffering and the problems of litigation, little has been written about the heroics of civil and medical authorities in responding to the emergency. One hospital had an estimated 20,000 emergency visits in 24 hours. Relevant to the theme of this Conference was the lack of information available to the responsible officials on Methyl-Isocyanate, such as

chemical processes involved in its production,
toxicity of Methyl-Isocyanate,
potential downstream interaction of Methyl-Isocyanate with the environment and the production of other toxic substances,
acute and long term health effects, and
methods of treatment.

Responding to a request from the Indian Government, CDC sent a team of four physicians to provide epidemiologic consultation. Among their contributions was a four inch packet of articles which was copied and distributed widely throughout India. The data had been assembled at the National Institute of Occupational Safety and Health, one of the component parts of CDC, from two in-house data bases: NIOSHTIC and RTECS. NIOSHTIC is a bibliographic database containing abstracts on 112,000 published articles dating back to 1890. An excerpt from one of the abstracts on animal experiments with Methyl-Isocyanate gives an indication of the compound's toxicity.

"In the first experiment, the vaporization of 4.0 gram M in a 400 liter space caused rats and mice to squint, twitch, and suffer shortness of breath and hyperactivity. All the animals died of pulmonary edema during or shortly after the 30 minute exposure. During a 1 hour exposure to 0.4 grams M vaporized in a 400 liter space, the animals had the same reactions as those in the previous experiment, and died within 24 hours. Vaporization of 0.5 grams M in a 2 cubic meter space caused damage to the animals within 1 hour. Death occurred within 1 to 19 days."[9]

RTECS contains toxicity data on 71,000 chemical substances with their 175,000 trade names and synonyms. Together with other information available through the National Library of Medicine and commercial data bases, India was provided with most of the world's literature on Methyl-Isocyanate. For a country faced with a major disaster, the limited data was indispensable.

Access to available data by the developing world is a major challenge for the coming decade. The NIOSH data bases are available in the U.S. through the National Library of Medicine and through commercial systems in the U.S. and in other developed countries. Many developing countries, however, do not currently have access to such data.

Two other aspects of access deserve attention. Access involves more than a terminal. It requires trained staff to retrieve and use the data. Leadership in this area is being provided by the International Labor Organization (ILO)

through two initiatives: the establishment of national occupation safety and health centers, and the training of occupational health specialists. During the last year, nationals from Uganda, Thailand, Mexico, and India have received special training in occupational health.

A second aspect of access is the availability of data in a usable form. Factory inspectors in India have limited technical information on production processes, potential toxic risks, and monitoring methods. In the context of the Bhopal disaster, the Conference theme "Libraries and the Universal Availability of Information" has a special meaning. Technical data need to be adapted to a format usable in the field.

DISSEMINATION OF INFORMATION: AIDS IN THE UNITED STATES

Dissemination of information can be passive or active. In passive dissemination, information is provided to those seeking information. In the field of medicine, use of medical libraries, bibliographic searches, journal subscriptions, attendance at lectures, and participation in professional meetings are examples of user initiated requests for information. In active dissemination, the holders of data provide information to those with a need to know. AIDS in the United States provides an example of the need for disseminating information. AIDS, Acquired Immunodeficiency Syndrome, is a new

disease first recognized in 1981. The virus, a retrovirus, has recently been identified. The disease is believed to be nearly 100% fatal. For each 6-month period the number of newly detected cases has increased.[10] Further increases are expected in the years ahead. CDC's involvement in AIDS exemplifying this active process of disseminating information, has included:

the identification of high risk groups:

homosexual and bisexual males,
intravenous drug users,
heterosexual contacts of AIDS cases, and
recipients of blood transfusions and blood products;

the identification of methods to limit exposure in populations with high risk:

serologic screening of blood for transfusion,
heating of plasma concentrates used to treat hemophiliacs, and
limiting sexual contacts; and

the active dissemination of information to the population at risk through:

the MMWR,
the media - TV, radio, press,
lay publications, and
advocacy groups.

The detection of a major focus of AIDS in central Africa with transmission primarily through heterosexual contact provides a new challenge. As epidemiologists have documented the geographic distribution of AIDS in Africa and the rapidly increasing rates of spread, African governments are actively searching for methods of information dissemination.

Two past experiences with active dissemination of information in the developing world provide some clues. Ten years ago the last case of severe smallpox, Variola Major, occurred in Bangladesh. Its eradication was achieved not by mass vaccination but by the detection and control of each outbreak. When the health system found that it could not find the outbreaks quick enough it turned to the public. In Bangladesh for 10 days every two months, 10,000 health workers each visited 1200 houses, a total of 12 million household visits, to provide the public with information on the need to report smallpox, a reward of $15 for each new outbreak reported, and where to report. Public knowledge of smallpox as measured by knowledge of the reward increased from 30 to 80 percent. Forty-four of the last 119 Variola Major in the world were voluntarily reported by the public, a major shift from the case hiding and report suppression that had been common four years earlier.

More recently, mass media have been used to teach mothers to use home made solutions of sugar, salt, and water to treat diarrhea, a disease that kills an estimated five million children annually. Combining radio, media, and

face-to-face contacts at health facilities, the traditional practice of withholding fluids is being replaced by oral fluid therapy. As a result, mortality from diarrhea is decreasing.

In Africa, the dissemination of information on AIDS will require similar creative approaches to communication to those at risk.

USE OF INFORMATION: MEASLES IN NIGERIA

Should the holders of information be concerned about its appropriated use? I firmly believe that quality of use is as important to the information system, as a score of a football match, or the bottomline of a balance sheet. Only if the data are "used correctly" can the work involved in collection, access, and dissemination be justified.

Perhaps the following example from a recent personal experience in Nigeria will illustrate this need. Measles kills 3 out of every 100 children born in Africa, and in Nigeria, an estimated 120,000 deaths associated with measles occur each year. Measles vaccine, developed in the early 60's, has a great potential in preventing a major killer of children. When measles vaccine was first introduced in 1966, it was targeted at six-month old infants, the age determined by preliminary research to be safe and effective. Experience in the early 1970's identified high rates of vaccination failure in children.

vaccinated before nine months, leading in 1977 to a change in the recommended age of immunization to nine months.[11] Last fall during a UNICEF consultation to Nigeria, I found many vaccinations (70% in one clinic) were still being given before the recommended 9 months. Children were dying because current information was not being used. Retraining has now corrected this practice.

CONCLUSIONS

The theme of this conference - the Universal Availability of Information is very timely and important. In this age of exploding information, data bases, and on-line capability it is important to keep in perspective the four needs for information:

collection,
access,
dissemination, and
use.

These needs may be best remembered in terms of the four persons met during this presentation:

the laboratory technician in Kenema
the factory inspector in India,
the sexually active teenager in Central Africa, and
the nurse administering measles vaccine in Nigeria.

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THE LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE AND ITS LIBRARY SERVICES

by

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The London School of Hygiene and Tropical Medicine and its library services.

by

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The London School of Hygiene and Tropical Medicine (LSHTM) is a postgraduate medical school of the University of London and it is a major world centre for teaching, research and advice on the promotion of health and the prevention of disease. This paper describes briefly the School's inception and early work, its current areas of research and training, and the role of its Library in supporting these activities.

Historical background

The School's beginnings lie in the urgent need felt in the last decade of the nineteenth century for members of the British armed and colonial services, as well as missionaries, to receive some training in tropical diseases. Following recommendations made to the Colonial Office by its Medical Advisor, Sir Patrick Manson, the London School of Tropical Medicine was opened on 2nd October 1899 at the Royal Albert Dock on the Thames, with an initial intake of nineteen students. The School grew rapidly and within four years colonial governors around the world were being asked to provide financial assistance for the School - assistance which was forthcoming and which enabled the School to pay off its debts and to continue to expand.

From its inception the School did not confine itself to teaching but embarked on a programme of research, particularly on malaria. By 1911 the School felt sufficently self-assured to launch its own journal the Journal of the London School of Tropical Medicine

> "devoted to the subject of tropical medicine and conducted by the staff together with past and present students.."

However the enthusiasm of the staff and students did not survive the second volume and the **Journal** ceased publication in 1913.

Because of its importance in the development of information services in tropical medicine it is necessary at this stage to bring into the picture the Tropical Diseases Bureau. This was founded in 1908 as the Sleeping Sickness Bureau by the Colonial Office in response to a remarkable spread of sleeping sickness in eastern tropical Africa. The new Bureau's chief function was

> "to collect from all sources information regarding sleeping sickness; to collate, condense and, where necessary, translate this information; and to distribute it as widely as possible among those engaged in combating the disease."

Its first scientific publication was the first issue of the **Sleeping Sickness Bulletin** which appeared in October 1908. It soon became evident that what was being done for this one disease could similarly be done for others. A **Kala Azar Bulletin** (dealing with one form of the disease we now call leishmaniasis) began in 1911. Plans for extending the Bureau's functions to cover other tropical diseases matured quickly and in 1912 it was renamed the Tropical Diseases Bureau and its publication the **Tropical Diseases Bulletin**.

By now the School and its attendant Hospital for Tropical Diseases had outgrown its premises and in 1920 they moved to a new address - a converted hotel in central London. At the same time the Tropical Diseases Bureau moved into a suite of rooms in the new hospital and its valuable library was amalgamated with that of the School.

Postgraduate medical education was now being re-thought and a need was expressed for the teaching of public health within the University of London. Thanks to the generosity of the Rockefeller Foundation a new building for the proposed LSHTM was commissioned on a site adjacent to the University's central building and the new School was opened in 1929. In the years since its opening the School has continued its training courses for doctors wishing to work in the tropics. At first these were mainly British men or women proceeding to duty in

the colonies or missionary stations. In the years of transition from colonial rule to independence they were replaced by medical students from these former colonies who were now being trained for service in their own countries. In turn they have now been replaced by students who will return as teachers rather than practitioners. As its contribution to the health services of Britain, the School began training doctors in public health who would then serve as local medical officers of health in local authorities throughout Britain.

The disciplines of tropical and preventive medicine have been at the core of the School's work since 1929, and contributions to world health from its staff include Sir Graham Wilson's work on the bacteriology of milk, Raistrick's monumental collection of papers on the biochemistry of fungi, Platt's studies on tropical nutrition, Garnham's unravelling of the exo-erythrocytic cycle of the malaria parasite in the liver, and, most famous of all perhaps, the epidemiological surveys of Hill and Doll linking tobacco smoking to cancer of the lung.

The School today

The School now has 21 academic departments and service units organized into three divisions:

DIVSION OF MEDICAL STATISTICS AND EPIDEMIOLOGY
Medical Demography and Centre for Population Studies; Medical Statistics; Epidemiology; Tropical Epidemiology Unit; Computer Services

DIVISION OF COMMUNICABLE AND TROPICAL DISEASES
Clinical Tropical Medicine; Entomology; Medical Microbiology; Medical Helminthology; Medical Protozoology; Troical Hygiene; Ross Institute; Wolfson Tropical Pathology Unit; Wolfson Unit of Molecular Medical Microbiology and Parasitology; Arbovirus Unit; Electron Microscopy Laboratory

DIVISION OF COMMUNITY HEALTH
Community Health; Human Nutrition; Occupational Health; Evaluation and Planning Centre for Health Care; Preventive Teratology Unit

Each Department is concerned with both teaching and research in the School.

Teaching. Teaching is the central function of the School. Its teaching programme consists primarily of Masters' of Science courses of one full year's duration,

October to September, and attracts 250 -300 full-time students each year. Twelve MSc courses are offered in a variety of subjects from across the three Divisions, e.g. community health in developing countries; epidemiology; human nutrition; medical demography; occupational medicine. In addition several Diploma courses are offered of shorter duration. All MSc, and most Diploma, courses are examined by the University of London. A variety of specialised short courses is held at various times throughout the year, ranging from a 5-day course on refugee community health care to a 3-month part-time course in medical statistics. Currently, the School has 66 full-time and 75 part-time students registered for PhD research degrees. Because of the nature of much of the School's interests and links the majority of its students are from abroad - 62% - which makes for a truly international environment.

Research. 48% of the School's income is provided by research grants and contracts, the balance being met by Government grants towards teaching British students and from student fees. Some 55% of the School's staff are employed on fixed term contracts to work on research and the School is currently undertaking work on 211 different projects. Last year School staff published over 500 papers in the biomedical press[1]. The range of this work is enormous in terms of both subject complexity and geographical diversity.

Examples from each Division will suffice:

DIVISION OF MEDICAL STATISTICS AND EPIDEMIOLOGY

- child mortality in Mali
- effects of seasonality on pastoral communities in the Sahel
- cancer in the printing industry
- children conceived by in vitro fertilisation
- prognosis of asthma
- survival of treated hypertensive patients

DIVISION OF TROPICAL AND COMMUNICABLE DISEASES

- control of tick infestation by cattle immunization
- mosquito attractants
- development of anti-schistosome vaccines
- persistent lymphadenopathy syndrome and AIDS
- synthetic hepatitis B vaccine
- immunobiology of malaria
- antimalarial drug combinations
- evaluation of leprosy in Malawi
- efficacy of measles vaccine in Brazil

DIVISION OF COMMUNITY HEALTH

- lifestyles and aspects of health in middle into early old age
- use of economic and social information in famine prediction and response
- lung function in London firemen
- mortality and morbidity in cadmium workers
- health improvement in refugees

These examples have been selected to show the range of disciplines covered within the School and to indicate the extent of the School's involvement both with health services and industry in UK and also internationally.

The World Health Organization (WHO) is the fourth largest contributor to the School's research programme and several departments have been designated as WHO Collaborating Centres, including the Collaborating Centre for Reference and Research on Viral Hepatitis (Department of Medical Microbiology), the Collaborating Centre for the Screening of Antimalarial Compounds (Department of Medical Protozoology) and the Collaborating Centre for Environmental and Epidemiological Aspects of Diarrhoeal Disease (Department of Tropical Hygiene).

School Publications

It is perhaps worth noting at this point that the School is active as a publisher. It currently publishes two journals, the **Journal of Helminthology** and the **Journal of Tropical Medicine and Hygiene** (produced on its behalf by Blackwells Scientific Publications Ltd). A new School journal will be launched in the Spring of 1986, **Health Policy and Planning: a Journal on Health in Development**, to be published by Oxford University Press.

Housed in the School and working in very close liaison with it is the Bureau of Hygiene and Tropical Diseases, the modern-day successor to the Tropical Diseases Bureau. Funded by the Overseas Development Administration, it publishes two important abstracting journals, the **Abstracts on Hygiene and Communicable Diseases** (ranked only behind Index Medicus and Current Contents/Life Sciences for frequency of usage by microbiologists in one survey[2]), and **Tropical Diseases Bulletin.** In addition it produces occasional review publications - recent ones have covered AIDS and Legionnaire's disease.

The Library

History

Since the School's beginnings in the Albert Dock there has been a Library of some sort, however small. For the first 20 years or so it grew gradually in a fairly haphazard manner under the care of an honorary curator, the School's Professor of Helminthology. The first librarian of the School was appointed in February 1921. He was Cyril Cuthbert Barnard, the creator of the Barnard Classification for Medical and Veterinary Libraries. He gives an interesting description of the Library as he found it:

> "Students and staff...had been in the habit of coming and going at all hours of the day and even late at night. They were expected to sign for books they borrowed, but in the absence of any attendant there was no check on this, and losses were considerable. Every afternoon during term the reading room was invaded by waitresses from the neighbouring A.B.C. teashop who proceeded to set up their urn and dispense tea, cakes and buns to the students. The air soon became thick with tobacco-smoke and the carpet bespattered with with trodden-in crumbs and fag-ends of cigarettes." [3]

Barnard served as Librarian until his untimely death in a street accident in 1959. He was succeeded by his deputy Victor Glanville who remained as Librarian until his retirement in 1981. In the 55 years they worked as Librarians to the School they built up an unrivalled collection of world literature on public health and tropical medicine reflected in the publication in 1965 of the Library's **Dictionary Catalogue**[4].

Library services

Currently the Library has 70,000 volumes and, through its cooperation with the Bureau of Hygiene and Tropical Diseases (the present-day successor to the Tropical Diseases Bureau) receives some 1,100 current serials. The Library is a depository for WHO publications and receives copies of everything published in Geneva and by the Regional Office for Europe in Copenhagen. Among its special collections are the Brownlee collection of early epidemiological literature, the Reece collection on vaccination against smallpox, and the Ross Archives, comprising the scientific papers and personal papers of Sir Ronald Ross, the discoverer of the transmission of malaria by the mosquito[5].

The premises in Central London are full and the Library has had to adopt a policy of 'self-renewal', relegating each year as much material as it acquires. This is done mainly by sending material to the University of London Library Depository outside London where it becomes the property of the University and managed by them.

The library staff comprises four professional library staff, four library assistants and four clerical assistants two of whom are part-time. Because of the intensive nature of the School's MSc courses heavy use is made of the Library by students preparing seminar papers and following up reading lists. As many of the students are from overseas and are often unfamiliar with using libraries, demands by readers for assistance with tracing literature, using catalogues and finding information are very high. At the time of their registration all students are given an introductory lecture on the use of the library - these lectures have been included in the syllabus for School courses since 1934. At this introductory lecture all students are given an **Information Guide** produced by library staff. Altogether there are six of these guides to the literature of subjects taught in the School, covering tropical medicine, occupational health, epidemiology and community health, human nutrition, medical statistics and demography, medical microbiology, and a seventh providing guidance to libraries and bookshops in Central London.

In recent years library staff have begun to give students from individual courses seminars on the use of the major abstracts and indexes in their subject areas during which demonstrations of online searching techniques are given. All MSc students must complete a written dissertation and an increasing number now request a computer search preparatory to embarking on their projects.

The Library is equipped to handle its own online searches, the majority of which are carried out on Medline and the biological databases, particularly BIOSIS and CAB.

A free interloan service for staff and students is provided. Students of the University in Central London are fortunate in their opportunities for access to libraries: within a 5-minute walking distance of each other are the large 'generalist' libraries of the Senate House (the central library for the University and containing a million volumes) Birkbeck College and University College London (the latter to become the central science library for the Bloomsbury area) as well as the specialised libraries such as that of the London School of Economics, the School of Oriental and African Studies, and the School of Hygiene. Most of the University's libraries participate in the **Union List of Serials** which currently indexes the location of some 80,000 titles in 58 libraries within the University. It is usually possible to arrange access for readers to virtually all of these. If a title is not available nearby, library staff will obtain a photocopy (or loan) through the British interlending network based on the British Library Lending Division at Boston Spa or through our informal links with other, usually medical, libraries.

The Library does not have facilities for selectively disseminating information to research staff other than on an informal, irregular basis. To a certain extent this is provided through the activities of the Bureau of Hygiene and Tropical Diseases. The Library and the Bureau cooperate in obtaining literature which is then reviewed for inclusion in the two abstracting periodicals **Abstracts on Hygiene and Communicable Diseases** and **Tropical Diseases Bulletin.** These two titles contain some 9000 abstracts each year, many of which have been written by

School-based staff. For the past two years these journals have been produced using the minicomputer facilities of the Commonwealth Agricultural Bureaux and it is hoped to make this database available soon for online searching.

Training. For many years the library staff of LSHTM have been welcoming librarians and others from overseas who spend varying periods of time attached to the Library undertaking practical training. Medical librarians in Ghana, Senegal, Ethiopia, India and Sri Lanka are among those who have received some training at the School in the past two decades, and in recent years we have welcomed librarians from Sudan and Kenya and a medical information worker from Poland. As part of the School's involvement in, and concern with, development issues overseas the Librarian has been seconded on various occasions to run training courses overseas on behalf of the British Council - notably in Sudan.

Medical Advisory Services for Travellers

In April of this year a new service was launched in conjunction with the School and with the Bureau, called MASTA - Medical Advisory Services for Travellers Abroad. This is an extensive new data base on health information for travellers. The specific health risk for each of 84 communicable diseases has been estimated for all the countries of the world according to the living conditions of the traveller abroad. The risk is regularly revised as data is received from a variety of sources - WHO; CDC Atlanta; the journals and reports received by the Library and scanned by the Bureau; foreign embassies; information from returning travellers etc. MASTA has developed a computer system to extract information from this data base for the individual traveller according to their intended itinerary, personal medical and immunization history, and the living conditions expected abroad. The information is provided, for a fee, in a HEALTH BRIEF, available at three levels - Basic, Concise and Executive.

The Future

Earlier, acknowledgement was made of the work done by Barnard and Glanville in building up the magnificent collection that the Library undoubtedly is. By its

very nature as the largest of two tropical medical schools in Britain, it is regarded de facto as the national collection in the subject (and an important one in the field of public health) and it attracts numerous visitors each year to consult its historical materials. Consequently, the School has felt the need to preserve its historical collection as much as possible. Nevertheless, the Library's prime purpose is to support the current teaching and research of the School. Attention has already been drawn to the pressing problem of the lack of space and the need to 'self-renew', so that our de facto role has already been compromised. Thankfully, a solution now appears to be at hand. The Wellcome Trust has established a new Wellcome Tropical Institute in London, five minutes walk away from the School. Its central purpose will be to develop resources for teaching tropical medicine using distance learning methods and thus will work very closely with the School. The Institute wishes to build up a library of the history of tropical medicine, to complement its neighbour (and parent body) the library of the Wellcome Institute for the History of Medicine. The School will be able to deposit in the new library much of its little-used historical material which nevertheless needs preservation, alongside a large historical medical library staffed by subject experts and archivists. Space will be released at the School, thus enabling us to slow down the process of relegating materials to the University's Depository.

This partial solution to our problem of lack of storage space comes at a time when the volume of material we acquire annually is likely to decline as a consequence of reduced funding. The British Government has warned universities that they can expect a 2% reduction in funding each year for the next five years. In addition, the decision by the Government in 1980 to charge overseas students the full, economic cost of their courses has particularly affected the School as it has the highest proportion of overseas students in any institution in Britain, rendering it highly susceptible to market forces in overseas education. The future, therefore, is likely to be one of cancellations of periodical titles,

particularly of secondary sources; reductions in book purchases and a severe curtailment in binding. Charges for services, particularly interlibrary loans, will have to be considered and possible new areas for revenue-earning explored, e.g. literature searches for non-School staff and document delivery for overseas libraries (in conjunction with the Bureau's services).

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